BENCHMARK

ON DISPLAY

Benchmark looks at 19 inch LCD monitor options

Higher Resolutions

Benchmark considers the performance of Full HD surveillance cameras

HOSTILE VIEW

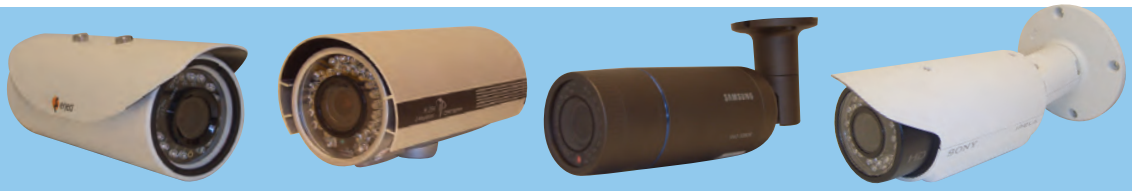
Uneven lighting can cause issues for video surveillance; Benchmark tests WDR cameras

ON THE RECORD

Benchmark considers whether four channel DVRs are capable of delivering a higher level of performance

SAMSUNG PRODUCT TEST ROUND-UP

Seeking Higher Resolutions



PRODUCT	Eneo GXC-1606M	G-Tec GT79AD/P	Samsung SNO-5080R	Sony SNC-CH180
FEATURES AND FUNCTIONS	78%	79%	84%	84%
EASE OF INSTALLATION	79%	82%	82%	72%
IMAGE QUALITY	83%	81%	84%	84%
PERFORMANCE	80%	78%	80%	80%
OVERALL RATING	80%	80%	82%	80%

RECOMMENDED RECOMMENDED RECOMMENDED RECOMMENDED

Megapixel video is a high-profile option in the security surveillance sector, and the most common area is 1.3 megapixel cameras. Designed to offer enhanced image quality, is it always the case that more pixels equates to a superior image? Benchmark looks at around-the-clock megapixel performance to see what results are achievable.

Megapixel video is nothing new; the options have been around for a good few years now. However, it needs to be remembered that the 'megapixel' tag tells you nothing about the product aside from an outputted image size. For example, all you know about a 1.3 megapixel camera is that the image should contain 1.3 million pixels. The fact that it is a megapixel camera tells you nothing about frame rate, aspect ratio or other features and functions.

Indeed, many see the term 'megapixel' as a reassurance of high quality, but this isn't the case. If, for example, you had 1.3 million pixels of poorly processed video with little colour accuracy or range, the reality is that you would have an unusable picture – but it would still be a 1.3 megapixel image!

There has been much debate in recent times as to whether megapixel cameras can be used for around-the-clock security. Some doubt their ability to work in low light conditions, while others are quick to state that bandwidth limitations don't allow true 24 hour protection. The aim of this test was to discover how well the cameras perform in a range of conditions including daylight, darkness and low light periods such as dawn and dusk.

Samsung SNO-5080R

Samsung's SNO-5080R is a true day/night integrated camera with integral IR LEDs for night-time performance. Using a 1/3 inch progressive scan CMOS sensor to deliver a maximum resolution of 1280 x 1024, the camera offers H.264, MPEG4 and M-JPEG streams with up to 10 profiles. Frame rate for maximum resolution is 22fps.

Sensitivity is quoted as 0.3 lux for a 50IRE image. Signal to noise ratio is 50dB. The

camera includes an array of 31 LEDs with a range of up to 30 metres.

Connections include an alarm input and output. Two-way audio is also supported. The camera utilises 12V DC, 24V AC or PoE power input. It is fitted with an integral 2.8-10mm F1.2 varifocal lens.

Features and functions include backlight and highlight compensation, SSDR (dynamic range), SSNR (noise reduction), privacy masking, support for an SD/SDHC card and video analysis. The latter includes virtual tripwire, object appear/disappear, directional motion detection and scene change detection.

The camera is supplied with a quick start guide and a mini CD. At first glance you might think the quick start is a full manual, but it includes 10 pages per language, in a huge variety of languages. The CD includes the full manual, plus a utility to address the camera. A second mini CD includes a copy of the Net-I Viewer software.

Installation is simple; connections are made via the attached flyleads, and a utility supplied on the CD quickly finds the camera on the network and allows access. Once connected the menus are fairly straightforward, but navigating them is slower when compared to other cameras. It's not agonising, but you will notice a delay when moving from page to page.

The camera has M-JPEG set as the factory default, but this can be changed. Switching to H.264 shows that Samsung has done a good job of implementing the compression, but latency is just shy of one second. There isn't really a lot you can do to ruin the H.264 image. From 2Mbps downwards motion does create rebuild artefacts, and forcing it to prioritise quality over frame rate at lower bandwidths increases latency, but at the test bandwidth cap of 5Mbps the camera works well.

Image detail is high, and colour accuracy is spot on. Greyscale fidelity is good too. The camera does have a high level of functionality, and whilst you don't get the degree of flexibility available from some of Samsung's other cameras, you do get more than many similar network cameras offer!

As light levels fall, the image retains a high degree of quality, although you do see a slight increase in rebuild artefacting following movement. Colours retain a good level of fidelity, and the various camera settings include SSNR, so noise can easily be eliminated. As with most Samsung cameras, there is a lot of processing on offer, and over-use can affect image quality. If the effect is increased degradation, back off some of the settings. There is a balance to be achieved, but overuse of the functionality can be worse than under use!

The camera holds a relatively noise-free image until the point when a lack of light sees colour fidelity slipping away. There are two settings for the day/night switching point: Fast and Slow. There's not much to glean from the descriptions, and indeed we didn't find too much variance between them. The fast setting saw the camera switch at around 1.8 lux, and the slow setting saw it switch at around 1 lux.

To our way of thinking, both switching points occurred a tad too late as the lack of light pretty much reduced the level of colour fidelity.

A note about the IR illuminators is that the camera has an adjustment for the intensity of the LEDs. This can be controlled manually, or automatically. In the automatic mode, the camera compensates for objects close to the camera to ensure that a bright spot isn't created.

The IVA function works well, and adds another dimension to the camera. It may well sway a number of installers and integrators looking for a competitive edge.

Verdict

The GXC-1606M from Eneo does deliver a decent level of image quality, and whilst functionality is limited, the camera presents a credible option. The unit would benefit from a tweak to the compression settings, but it's not enough to make it a bad choice.

The GT79AD/P from G-Tec is a budget camera, but despite that tag - which often implies lower quality - the unit does perform well. There are a few niggles: the IR illuminators do create a bright pool of light in the middle of the image.

Samsung's SNO-5080R offers good functionality, good image quality, and very good IR illumination. The IVA features are the icing on the cake for what is a very cost-effective camera. However, there is one small fly-in-the-ointment, and that's the switching point for the day/night mode. There are two settings, but the difference between them is miniscule.

Finally, the SNC-CH180 from Sony is a good performer, and has the depth of functionality to address most needs. Image quality is good, and when all is said and done, it's the image that the end user will focus on.

PRODUCT	Everfocus ECOR264-4x1	G-Tec SR2004XQL	Pelco DX4104
FEATURES & FUNCTIONS	83%	80%	75%
INSTALLATION AND USE	80%	82%	75%
VIDEO QUALITY	86%	84%	75%
OVERALL PERFORMANCE	83%	82%	75%
BENCHMARK RATING	83%	82%	75%

To identify products quickly and easily, always mention Benchmark when contacting suppliers and manufacturers.

RECOMMENDED

RECOMMENDED

Four Channel DVRs

In a world seemingly fixated by ever higher resolutions, emerging technologies and campus-type solutions, it is easy to forget that the majority of video surveillance systems out there feature low camera counts. Benchmark considers 4 channel DVRs to see what level of performance is available.

It is strange how many people automatically equate low camera counts with low risk applications. Because of the way some manufacturers market themselves, high risk sites are viewed as sprawling and complex installations, whereas often the reality is that many small sites using only a few cameras have high risk needs that simply cannot be compromised.

Samsung SRD-470D

The SRD-470D has an unusual footprint, in that it has the height and depth of a typical DVR, but comes in at around half the width. If the unit is to be desk-mounted, this will be a bonus for the end user, as desk space is optimised. Desktop real estate might sound like a bit of marketing spin, but many companies take the issue seriously, so it could be worth considering!

The DVR is a four channel model supporting four BNC inputs with associated loop-throughs. Other connectivity includes four audio inputs with a single output and four alarm inputs. Video out is via BNC or VGA, with an additional spot monitor output using BNC.

The SRD-470D uses the now seemingly de facto H.264 compression, and records at real time (25fps) on all channels at all resolutions. Resolutions are 4CIF, 2CIF and CIF. Resolution and frame rate can be set for each individual input. Recording can be continuous, scheduled or event based. Events are generated by external devices, video motion detection or video loss. The unit also supports pre- and post-alarm recording.

Search options are flexible, and can be carried out by date and time, event, motion or text string data. Searches can be made of back-up footage or of the on-board archive.

Samsung SRD-470D	Teleeye RX364	Videcon VXH264-4	Vista QP04-1000hf
84%	73%	82%	83%
82%	75%	82%	79%
80%	75%	85%	78%
82%	75%	82%	79%
82%	74%	83%	80%

RECOMMENDED RECOMMENDED RECOMMENDED

The unit features a DVD rewriter, although other options for archiving include USB connected devices – the DVR has two ports – or network devices. The network connectivity is gigagbit ethernet. The DVR offers basic telemetry functionality, and supports RS-232 and RS-485 data connectivity. Archived footage has a licence-free player burned to the DVD for ease of use, or can be saved as .avi files for use with generic video players.

Ease of use is underlined by the fact that the DVR can be controlled via the front fascia, a mouse or the supplied infrared remote control. Additionally, the unit is supplied with two manuals – installer and user – as well as a CD including remote viewing software.

The SRD-470D is simple to set up, and the only anomaly we had was that it was pretty selective about which mouse we used.

Once up and running, the menus are very intuitive, and this assists in making the unit easy to configure. Everything appears to be where it should be, and it's certainly one of the easier to use DVRs in the test.

The SRD-470D records at real time (25fps) on all channels at all resolutions. Recording can be separately configured for normal and event recording. There are eight quality levels, although in event recording there was a ninth higher quality level, but using this did require a reduction in frame rates. It's not clearly explained in the manual or the specs.

On the subject of image quality, the H.264 implementation is good, and movement is certainly fluid. However, in very busy scenes there was a slightly ragged look to some high contrast edges that could be indicative of a slight interlace issue. In scenes without high contrast edges it didn't materialise at all.

The higher quality levels produce clean video, whilst there are only slight signs of compression in the medium settings. Video is only really suitable for general surveillance at the lower settings.

Search options are flexible, and can be carried out by date and time, event, motion or text string data. The ability to search footage for motion in defined areas is welcome; it adds a degree of capability that will appeal to many applications.

The plus points for the SRD-470D are a very intuitive interface, a small footprint for the hardware, and enough flexibility for the vast majority of applications. It is a good machine with well implemented compression, plenty of flexibility, ease of configuration and search options with plenty of scope for differing needs.

PRODUCT	CBC VSC-22610	Genie CCTV VRD83TSPX	Honeywell HD4USX
FEATURES & FUNCTIONS	75%	80%	81%
EASE OF INSTALLATION	80%	80%	80%
BRIGHTNESS COMPENSATION	85%	86%	85%
DARKNESS COMPENSATION	84%	84%	86%
OVERALL RATING	81%	82%	83%
	RECOMMENDED	RECOMMENDED	RECOMMENDED

WDR Static Dome Cameras

Wide dynamic range is a hot topic in video surveillance. Benchmark tested a number of cameras to see what the technology delivers.

One of the main problems with video surveillance has been the capture of detailed images in applications with unbalanced illumination. The issue of both dark and bright areas in one scene has been addressed by wide dynamic range functionality. The test was split into two parts: Brightness Compensation and Darkness Compensation.

Samsung SCD-3080

Samsung's SCD-3080 uses the manufacturer's SV-5 chipset to deliver high resolution WDR performance. Resolution is claimed as 600 TV lines; that's in standard old-fashioned horizontal resolution. Sensitivity is quoted as 0.3 lux for a 50IRE image.

Functionality is high, as many have come to expect from the SV-5 enabled products, and options include day/night switching, simple profiles for varying conditions, virtual progressive scan, SSNR 3D noise reduction, SSDR, image stabilisation and intelligent video analysis. WDR can be configured as Low Middle or High, with Level settings and indoor or outdoor bias!

A point of note here is that SSDR (Samsung Super Dynamic Range) is not the same as WDR. Despite this, some manufacturers like to pit their WDR offering against cameras with just SSDR. SSDR is very much for levelling out subtle shading differences that might affect detail in a scene. If you try using SSDR instead of WDR, you will be disappointed, as it simply isn't designed for hostile illumination issues. Switch from SSDR and WDR, and you'll soon spot the difference.

The camera is fitted with a 2.8-11mm varifocal lens. The housing is a simple twist on plastic unit, and the camera is intended for internal applications only. Connections are carried out via three flyleads. These are video out (BNC), power in (screw-type connectors) and an output for motion detection alarms, as well as an input to switch day/night operation externally, which is welcomed.

Traditionally, SV-5 cameras from Samsung do offer a high level of flexibility, and rushing in can result in a poor image. It's not just a

Pelco IM10LW10	Samsung SCD-3080	Videcon CVP9324WDR	Vista VFDAS4V9DN	Xeno XD4VPIX
78%	81%`	81%	80%	75%
60%	80%	80%	80%	80%
82%	85%	85%	83%	85%
80%	85%	86%	87%	84%
75%	83%	83%	82%	81%

case of turning features up, as balancing the processing. Sometimes you enhance the image by turning things down. It does mean a few more minutes optimising the camera, but the results are worthwhile.

The SCD-3080 delivers a credible level of brightness compensation, with high levels of detail and consistent colour accuracy throughout the viewed scene. There are no signs of artefacts or image degradation on the edges between brighter and darker areas, and detail isn't affected by varying light levels.

The camera includes highlight compensation, which masks very bright light sources, and we did wonder whether this might affect the darkness compensation element of WDR performance. However, it doesn't; in WDR mode the camera copes very well, even when bright lights are introduced.

Low light performance is very good, and whilst 0.3 lux is obviously optimistic, with processing switched off the camera holds a 1 volt peak-to-peak signal until just under 2 lux, which is very good. Although the camera features external switching, which we'd recommend, the auto switching occurs at around 3 lux, before noise becomes an issue.

Verdict

Both the Xeno and CBC cameras are based on the Pixim Seawolf chipset, and they do deliver an impressive level of performance given that they are very much low cost options.

Genie CCTV's VRD83TSPX handles both brightness and darkness compensation in its stride, and the lens is good quality too. The Seawolf chipset is noisy in low light, and a higher switching point would be good.

Honeywell's HD4USX gets around Seawolf's noisy low light performance by giving a decent level of adjustability for switching.

For a network camera, the Pelco IM10LW10 does impress; however, for pure WDR performance it doesn't quite match some of the other cameras.

Samsung's SCD-3080 proves that WDR can be addressed without the Pixim chipset. It matches the performance of the Seawolf models, and provides decent low light performance as well. If you're looking for a camera that performs well in low light and with harsh illumination, it's hard to beat. It also doesn't suffer from noise: a weakness with the Pixim chipset!

The CVP9324WDR from Videcon is another Pixim Seawolf-equipped camera. The camera's trump card has to be dealing with bright elements such as car headlights.

Finally, the Vista VFDAS4V9DN-WDR offers above average darkness compensation, but has a slightly faded look when compensating for brighter areas in the image.

Does size really matter?

Samsung - SCB-3020P

RECOMMENDED 80%

BENCHMARK RATINGS

Product Design:	80%
Features and Functions:	82%
Ease of Installation:	78%
Video Quality:	80%
Performance:	80%

When most installers think about 'pinhole' cameras, they tend to imagine units with compromised quality to achieve miniaturisation. It is felt that you can't have a discreet unit that delivers high performance. Samsung offers the diminutive SCB-3020; Benchmark considered its performance capabilities.

There was a time when most CCTV manufacturers offered some kind of miniaturised camera. These units were often billed as covert, and were essentially a miniature camera with a pinhole lens, shoe-horned into an everyday object like a clock or a box file. They created interest, made for an amusing anecdote or two at exhibitions, and sold in moderate numbers. They partially fell from grace as the privacy debate tagged such devices as 'spy cameras', and there's nothing like that term to raise the hackles of the general public.

In reality, a bigger constraint to high volumes of sales was down to the fact that the image quality wasn't the best! In order to make the units so small, compromises had to be made. As general CCTV quality was enhanced, so the gulf between the so-called miniaturised cameras and mainstream cameras became significant. Few could justify the difference, and the miniature camera slipped from the serious security sector to the 'gimmick' market-place.

Trends in modern security have changed, and the need for miniaturised devices is once more obvious. One area where there is an increased demand for diminutive devices is for ATM security. It is this market that Samsung has targeted with the SCB-3020, but it could also be considered for a range of applications where a discreet solution is called for.

Specification

The SCB-3020 is billed as an ATM camera, and indeed the marketing materials do headline it as: 'the camera only for ATMs'. We actually think that many installers will see other uses for the camera, if it delivers the specified performance!

The camera uses the manufacturer's A1 chipset, which is also widely used in a range of standard cameras. It lacks some of the high level flexibility of the top-of-the-range SV5 processing engine, but tests on A1 cameras in the past have seen them deliver an impressive level of performance for devices that are seriously cost-effective.

The camera makes use of a 1/3 inch double scan CCD; a 1/3 inch Super HAD version is also available. Resolution is quoted as 600 TV lines, and sensitivity is claimed as 0.45 lux for a 50IRE image with Sens-Up set to 2x. Signal to noise ratio is 52dB.

If there is one part of this camera that makes you nervous, it has to be the lens. Just looking at its size gives you the impression that the video quality is going to be strangled. The lens has a focal length of 3.7mm and an aperture of F2.0.

As you read down the list of features and functions you realise that most of the usual suspects are there. The camera supports automatic day/night switching, backlight compensation, wide dynamic range, noise reduction, image stabilisation, motion detection, privacy masking, sens up, gain control, virtual progressive scan, an alarm output and even intelligent video functionality. This camera might be miniature in physical

size, but it packs in all of the features associated with typical Samsung cameras.

The camera is supplied with a flylead for power and video connectivity, and the rear of the unit also houses an eight pin socket for firmware upgrades. A plug for this connection is also supplied. To access the menus and to configure the unit, you will require a coaxial-based plug-in controller. Depending upon a site's needs you may not need one controller per camera; a single unit should suffice as once configured, you are unlikely to tweak the camera on a regular basis!

One negative is that the marketing materials for the camera do not make it clear that an optional controller is required to adjust the settings. Given that this is unusual, we did feel that it should be highlighted. We have seen other cameras where a simple plug-in lead is used for set-up; perhaps Samsung should look at a similar option.

Installation

The SCB-3020 doesn't really differ from a traditional camera. It's simply a case of adding coaxial video connectivity, power input and you're away. The SPC-300 optional controller sits in the coax run, and the OSD menus are pretty familiar if you have used a Samsung camera before.

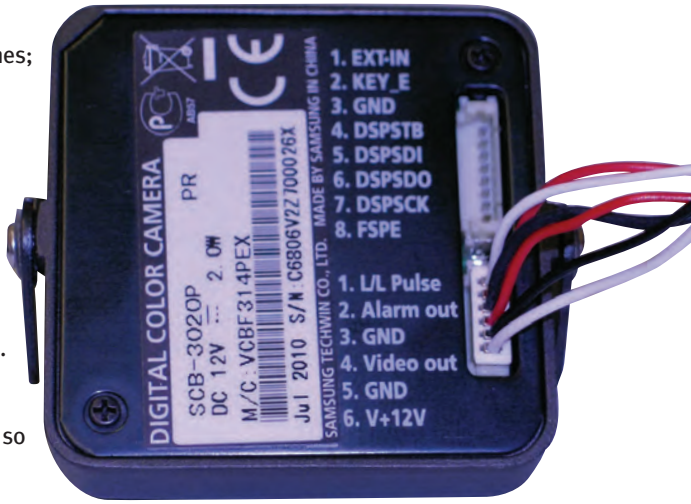
The only way to describe the manual is 'basic'. That said, there isn't much that will need to be explained to most installers.

The camera features a number of profiles, which are designed to allow faster set-up. It's a simple case of selecting the relevant profile that delivers the best quality image for your needs and tweaking from there. Interestingly, given that Samsung pushes this unit as an ATM model, the profiles include one for traffic monitoring and one for gaming environments! Obviously the processing engine is used across a wide range of cameras, but there's nothing specific for ATMs!

Setting up the camera is straightforward, and as is typical for Samsung units, there is plenty of flexibility on offer. The only real downside is the need for an additional controller, and if this wasn't the case then ease of installation would be significantly boosted.

Performance

The first thing you notice is that given the size of the lens and the camera itself, the image is nowhere near as bad as you initially fear! Detail is sharp, and resolution is certainly high. On test charts our test unit showed around 520 TV lines; 600TVL is usually quoted nowadays when higher density CCDs are used.



There are no issues with clarity at all, although if the camera is viewing objects in very close proximity there is some distortion due to the very small lens. The degree of barreling cannot be eliminated, but as the field of view grows so its effect is minimised. It does, however, mean that detail at the edges of the image do lose a little clarity.

Colour fidelity is good too, and colours are crisp and faithful. There is no obvious bias towards either warm or cool tones, and greyscales are accurate. That said, as light levels fall to below 20 lux some of the lighter tones (10 and 20 per cent greys) fade into one. Given the size of the lens and the proposed usage, it's not a major issue.

Our test camera did have a few dead pixels which appeared as white spots.These were only obvious with certain scenes. One was on the edge of the image, but two were fairly central.

As light levels fall, so the colours start to fade, and at around 15 lux they begin to look a little washed out. However, you would still be able to identify specific colours, but this changes at around 3 lux, after which noise starts to creep in. You can adjust the switching point in terms of brightness level and dwell time for both colour-to-mono and mono-to-colour switching.

Verdict

The SCB-3020 performs above typical expectations for such a small unit. That said, there are compromises, not least the lens performance and the need for an optional controller to configure the camera. However, the compromises are - if clear before specification - not significant enough to make the camera one to forget if size is vital.

Be aware of the negatives, and the positives will be enough in certain applications. It is, after all, a niche product.

We'll let you know if Samsung develops a better control option!

Better Defined?

PRODUCT	Abus Security TVIP52501	Axis Communications P1347	Hikvision DS2CD854F-E	Pelco IXE20DN	Samsung SNB-7000P
FEATURES AND FUNCTIONS	77%	81%	76%	83%	82%
EASE OF INSTALLATION	82%	82%	78%	74%	82%
IMAGE QUALITY	83%	83%	76%	87%	83%
PERFORMANCE	75%	81%	75%	85%	82%
OVERALL RATING	79%	82%	76%	82%	82%
		RECOMMENDED		RECOMMENDED	RECOMMENDED

High definition video is popular with end users, easier to sell due to its high profile, and delivers very good quality real-time images. Here, Benchmark looks at HD1080p cameras.

High definition video is very much an in-demand technology in the consumer sector, and this high level of popularity is bound to impact on the CCTV industry. For installers, integrators, specifiers and consultants, the technology represents a significant hike in overall quality, and a standard that delivers enhanced performance.

All cameras in this test deliver HD1080p, or 'Full HD' performance. The focus of the test was to assess ease of installation and configuration, alongside HD performance including image quality, frame rate and colour accuracy. A consideration was also taken of the suitability of additional features and functions for security applications.

Samsung SNB-7000P

Samsung's SNB-7000P uses a 1/2.8 inch progressive scan CMOS chipset to deliver HD1080p resolution video in real-time. The camera also offers up to 3 megapixel resolution at 20fps, but that is beyond the scope of this test. The camera supports multiple streams, using H.264 and M-JPEG compression. Sensitivity is quoted as 1 lux for a 50IRE image.

The camera is a box-style unit; connections include an alarm input and output, two-way audio, RS485 connectivity, a BNC connection for installation purposes and traditional power in. The camera supports 12V DC, 24V AC or PoE. An SD/SDHC card slot is also included.

Features and functions include day/night operation, BLC, wide dynamic range (in HD1080p mode), motion detection, privacy masking, sens-up and the usual configurations.

The camera also supports regions of interest (ROIs). This allows areas of the image to be specified, and the Smart Codec can be used to detect faces in the area and increase resolution.

Once the relevant connections are made, you simply run the supplied IP Installer utility, and it finds the camera. Either an IP address can be manually set, or DHCP can be used. Then you connect to the camera, load the two elements which are auto-prompted, and the camera is up and running!

The menu infrastructure is predominantly icon-based, and that's no bad thing because it

is pretty intuitive. The menus themselves are clear and settings are straightforward. One little touch that we liked is with numeric settings such as compression, it can often take up time using the extremes to work out which end of the scale is the best and worst! Thankfully the initial and final settings are named to give this information!

The camera defaults to 3 megapixel mode; switching to 2 megapixel mode allows the HD settings to be achieved, and also introduces further functionality. The first two streams default to M-JPEG and H.264; a simple tick-box allows you to select which is the default.

Viewing a H.264 image (High Profile), at 30fps with a GOP setting of 15, using 15Mbps bandwidth, the image is very good. Motion is smooth, even fast motion, and colour fidelity is good. Colours did have a level of vibrance that gives them an artificial look, but a quick tweak of the settings (which are, by default, all over the place) soon eradicated that. Things look natural if AGC is set to Low or Middle; High is a touch too aggressive for our liking.

When adjusting the bandwidth, we found the only irritation of the menu. It's a very mild one, but simple to fix! When changing the figures, you can highlight the previous setting and type in a new one. Instead you have to click in the box, delete each figure, the re-enter the new value. That it is the only thing that we could fault about the GUI does speak volumes.

The image stays clean, detailed and balanced as bandwidth falls, and at 5Mbps we did notice slight rebuild artefacts after motion, but to be honest you needed to be looking for them. As most users will be watching the motion, it won't be a concern. At 4Mbps you do start to see slight shimmer in some bland areas, along with some edge distortion on moving objects, but the image is still good enough for evidential purposes.

At 2Mbps (the unit's lowest setting for constant bit rate) the compression is clearly working overtime, and the image is restricted to use in applications where general observation only is required. It's at this point the need for a HD camera is questionable.

The camera has a quoted sensitivity of 1 lux for a 50 IRE image. We looked for a good quality colour image with minimal noise. At 3 lux the first signs of noise crept in; the camera's noise reduction helps keep it at bay. At 3 lux the image was usable, but noise was more evident. The noise reduction function is very good, and has a lot of flexibility, but caution must be exercised to avoid over-processing!

The camera switched at 1.6 lux, which was a tad too late in our opinion. Switching can be controlled by an external input, which is what we'd recommend!

Motion detection is basic, and allows recording to SD card, images sent via FTP or email, or triggering of the camera's relay. The Smart Codec feature split the vote, once we worked it out. The manual doesn't really explain it too well.

The ROIs can be manually set or use face detection. Essentially, it's a bandwidth management tool, with the selected area, or the detected face, receiving a boost in quality. This works if the camera is set for low bandwidths.

The opinions varied from positive to the negative. The positive feedback was more for the face detection than for a manually assigned area. A few liked that a wider area could be captured at low bandwidth, with a quality boost of the facial area when a face was detected to ensure people were identified. The latter opinions were based on the argument that no one wants to buy a HD camera to capture poor quality images, then just highlight faces or certain areas of the image. There's probably a bit of validity in both opinions!

Verdict

With the Abus Security TVIP52501, compression was well implemented, and the GUI is clean and easy to navigate too. However, the low light performance needs attention, and motion detection is basic and prone to false alarms!

Axis Communications' P1347 is a capable camera. Attention could be paid to day/night switching; the options are fairly limited. However, with regard to image quality, the camera delivers all that is expected from it.

Hikvision's DS2CD854F-E is let down by a very poor manual and a lack of utilities. The camera seems to struggle if bandwidth falls below 6Mbps.

Pelco's IXE20DN was a pain to configure, partly because it had the resources CD missing, and partly because once downloaded, the utility was a bit flakey. We got there in the end, and it was worth it for the best image quality in this part of the test!

Samsung's SNB-7000P is probably a more CCTV-centric camera than a few of the others, and its flexibility is impressive. The Smart Codec will be of interest to some, but not to everyone. The downside is that the compression engine struggles as bandwidth falls.

On Display

PRODUCT	AG Neovo SX-19P	Genie CCTV LM19PRO	Iiyama C1911S	Samsung SMT-1923
PRODUCT DESIGN	85%	80%	80%	85%
FEATURES AND FUNCTIONS	82%	80%	78%	84%
COLOUR FIDELITY	80%	80%	79%	80%
VIDEO QUALITY	82%	79%	78%	82%
OVERALL RATING	82%	79%	78%	83%

RECOMMENDED

RECOMMENDED

Video is a visual medium, and no matter how surveillance systems are used, the end result is that someone is - at some time - going to need to view the footage. Whilst much emphasis is placed upon capturing high quality video, that investment is wasted unless it can be viewed as high quality footage. Here, Benchmark looks at some of the options when selecting a 19 inch LCD display for video surveillance.

No matter what the application, video surveillance is very much a visual tool. You can build in all the analytics that you want, you can add intelligence until the cows come home, and it matters not unless the output of the system can be viewed. Many installers, specifiers, consultants and end users will strive to achieve the highest possible quality they can from their CCTV system, but the final quality, the viewed image, is very much dependent upon the display.

When LCD displays first appeared in the CCTV sector, there were a fair few people that weren't that keen on them. If the truth be told, many of the Benchmark team could be included in that number. The CRT might have been bulky, it might have been less economic to run, and it might have even been less energy efficient, but the image quality was very hard to beat. Indeed, even today a decent CRT will often compare favourably with a good LCD display.

That said, the transition to LCD displays as the mainstream monitor of choice in the CCTV sector is over, and there's little point in harking back to an almost obsolete technology. The slimline sized, energy efficient, flexible and functional LCD display is here, and image quality has also been improving all the time, and is set to continue to improve!

There are a number of important specifications for CCTV monitors, but the real test is a very simple one; how good do the images look? Can the monitor deliver clarity of detail within the image, does it show a good level of colour fidelity, and can it display fast motion without any degradation? If the answer is yes to all three, and it has the right

connections, then you pays your money and takes your choice!

Samsung SMT-1923

Samsung's SMT-1923 is a 19 inch unit with a plastic casing. The front fascia includes buttons for configuration. These are located under the screen. The menu control is fairly straightforward, and the unit is supplied with a remote control.

Connections are split between the rear panel and the side of the unit; AV audio inputs and outputs are located on the latter, whilst the former is home to all other connections. These are two composite inputs via BNC with loop-throughs, S-Video in with loop-through and VGA input. Power is 12V DC, and a PSU is supplied.

Resolution is 1280 x 1024, and brightness is quoted as 250cd/m2. Response time is 5ms and contrast ratio is 1000:1.

Other features include 3D comb filter processing, digital noise reduction, PIP/PBP and image freeze. It is worth noting that the PIP/PBP function can only be used if the main image source is VGA.

The unit is supplied with a simple desk-top mounting stand.

The Samsung unit has a very simple and intuitive menu structure, and this is further simplified if you are using the remote control. Even from the default settings, the colour temperature is very good and detail is high. That said, there is plenty of flexibility to tweak the settings should the application require it.

Very fast motion does create a very slight level of blur, but this is less than many of the other units in the test. There is no obvious image rebuild, even in harsh conditions.

That the PIP/PBP function only works with the VGA input as the main image is slightly irritating. The PBP function displays two images side by side, and this has two settings. The first forces the images into a half-screen space, effectively stretching them, while the second displays them in the correct aspect ratio. Selecting which PBP display type you want is done via the menus, but if you turn the function off then back on again, the unit will return to its default PIP settings.

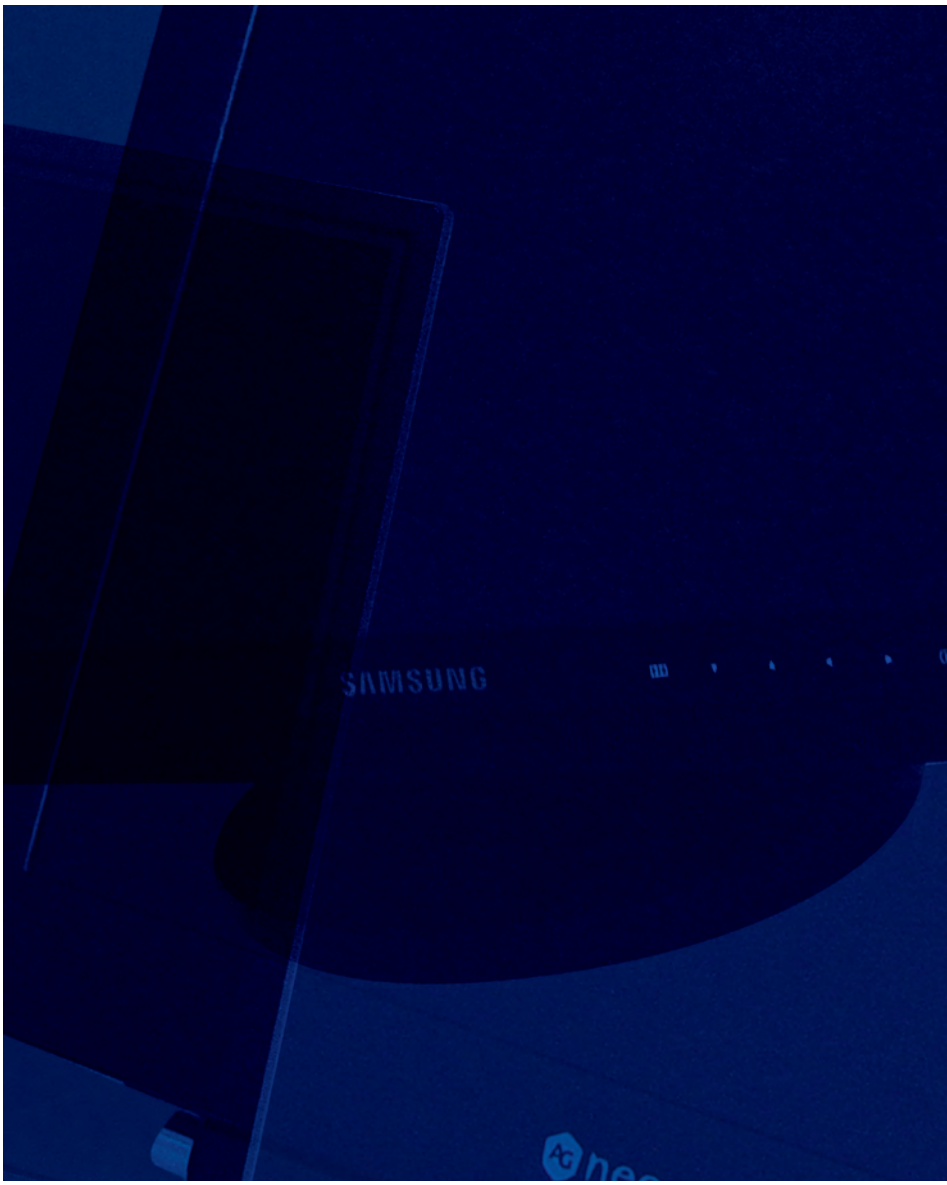
Verdict

The SX-19P from AG Neovo is well built, very flexible and delivers a good quality image. It does have a few odd settings, but you can always ignore those. You don't need a manual, but not providing one is penny-pinching.

Genie CCTV's LM19PRO has a good level of connectivity, and it delivers a strong and clean image. Functionality might be basic, but the quality is high. It did have one stuck pixel, and in time many stuck pixels right themselves. However, some don't.

The Pro-Lite C1911S from Iiyama is very basic. It has limited connectivity and little functionality, but once adjusted the image is acceptable for mainstream applications.

The Samsung SMT-1923 is a well built unit with good image quality. Clarity and colour accuracy are high. If there is one quibble, it's the PIP settings. That the main image must be VGA is limiting.



Finer Detail

PRODUCT	Hikvision DS-2CD863PF-E	IQinVision IQM31NE-B5	Siqura FD64	Samsung SNB-5000	Vicon V916D
FEATURES AND FUNCTIONS	79%	78%	82%	85%	82%
EASE OF INSTALLATION	80%	78%	78%	80%	80%
IMAGE QUALITY	81%	82%	83%	84%	84%
PERFORMANCE	80%	80%	81%	82%	81%
OVERALL RATING	80%	79%	81%	83%	82%
	RECOMMENDED		RECOMMENDED	RECOMMENDED	RECOMMENDED

High definition video looks set to change the way in which CCTV systems are designed and sold. Here, Benchmark looks at HD720p cameras.

Resolution is something that virtually every end user wants more of. Better quality images make sense, are easy to understand and easy to justify. However, HD video has other advantages that add to the positives it offers.

Higher resolutions equate to better quality images, an ability to investigate video without having a detrimental effect on its content, and the ability to achieve enhanced performance from analytics solutions and other processing-based systems.

Because HD is so popular in the consumer sector, it does increasingly mean that installers can leverage peripheral cost-effective devices. For example, displays are increasingly only available in 16:9 format. Try costing up a large high quality 4:3 display and you'll soon understand!

The final 'ticked box' for HD comes from the fact that is a simpler sell, which is a rare thing in security. End users are aware that they want higher quality images, and when presented with a megapixel option, they do what most non-technical people have been programmed to do and ask how many megapixels? These same users might have 5 megapixel cameras in their phones and 10 megapixel point-and-snap cameras at home. To them, 1.3 megapixels doesn't sound too great. Straightaway the installer or integrator has to explain the difference between still images and video.

However, mention HD video, and the end users understands what they are getting, that it is of increased quality, and that it carries a slight price premium. If anything, this point alone is significant for those seeking to upgrade surveillance installations.

All cameras in this test deliver HD 720p performance. The focus of the test was to assess ease of installation and configuration, alongside HD performance including image quality, frame rate and colour accuracy, as well as suitability of additional features and functions for security applications.

Samsung – SNB-5000

Samsung's SNB-5000 is part of the company's iPolis range of network products. The camera uses a 1/3 inch progressive scan CMOS sensor,

which utilises the Samsung Wisenet processing engine. The SNB-5000 delivers a HD720p image in real-time, with a 16:9 format. The camera is a day/night model and features an automatic IR cut filter. Sensitivity is quoted as 0.3 lux in colour mode, and 0.01 lux in monochrome mode. Figures are for a 50IRE image.

The camera makes use of H.264, MPEG4 and MJPEG compression. Frame rate is real-time for HD720p resolution. Multiple streaming is supported, with up to 10 profiles.

Alongside the RJ45 for network connection, the camera features two-way audio, an alarm input/output and power input. Power is 12V DC/24V AC. Power over Ethernet is also supported. The camera also includes an SD/SDHC card slot. The SD option gives up to 2GB of storage, with SDHC delivering a more usable 32GB.

The camera includes a BNC connector. This simplifies set-up as the camera can be quickly connected to a test monitor. It's also a real benefit when trying to adjust the lens.

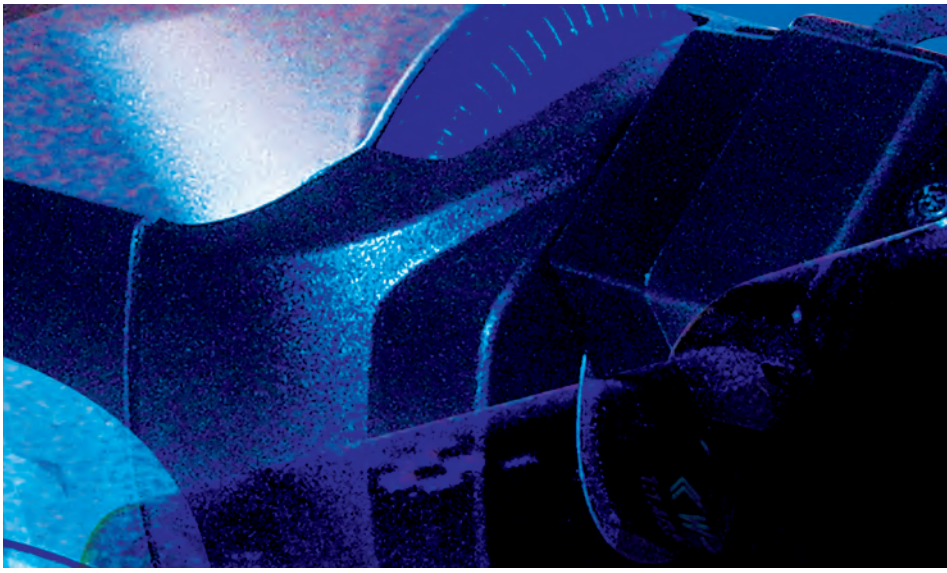
This camera boasts a host of functions including SSDR (Samsung's dynamic range feature), SSNR III (the noise reduction system), BLC with highlight compensation, and intelligent video analytics (object appear/disappear, entry/exit and virtual tripwire. The latter is licence-free, and so is enabled as standard. The camera is supplied with Samsung's Net-i software package, which allows licence-free video management and archiving.

Samsung supplies a utility to configure the camera; this is basic and runs without a need for installation on the PC. Once the camera is found and the address configured, you can then log in and finalise the set-up.

The SNB-5000 uses the Samsung Wisenet DSP, and this is very similar to the well-established SV5 processing that is employed on its high end composite CCTV cameras. As a result, you do get a lot of CCTV functionality, although some features are slightly simplified.

Image quality is high, with very good detail and excellent colour accuracy. As the bandwidth falls, so the image starts to show signs of compression, but detail and colour fidelity are preserved. It's only below 2Mbps that compression is obvious in certain parts of the scene, and once below 1Mbps you can have the debate as to whether a lower cost non-HD camera would suffice.

Low light performance is good, and you can push the Samsung camera further than some



others on the test. However, you need to exercise caution. The SNB-5000 has a lot of processing ability, and it's all too easy to overdo things and make the image worse. While conventional wisdom is that when an image is poor you turn things up to improve it, with the SNB-5000 you'll often find yourself turning the settings down! Remember this and you'll be impressed with the potential on offer.

Verdict

The DS-2CD863PF-E from Hikvision is a good quality camera, and is ideal for mainstream applications. The camera is not supplied with the free-of-charge client software, which needs to be downloaded, and that's a shame because it does offer additional flexibility.

IQinVision's IQM31NE-B5 will have limited appeal to those who do not want to use power over ethernet - for whatever reason - because it does not support conventional power inputs. That said, it's a decent - if somewhat basic - choice, but it does deliver a good image quality.

The one-off quality fault on Siqura's FD64 aside, its a good general purpose camera in everyday lighting. If it has a weakness, it is low light performance, and it needs to switch to monochrome mode earlier.

Samsung's SNB-5000 delivers a high level of CCTV-biased functionality, licence free intelligent video analytics, and high video quality. For many installers and integrators that will be enough.

The V961D from Vicon delivers clean, crisp and accurate images, and low light performance is also good.

CAPTURE.

RECORD.

DISPLAY.

CAPTURE.

iPOLiS
Network Solutions from Samsung

Full High Definition Image Capture	Intelligent Video Analytics	Scalable Recording	Remote Viewing and Control
FULL HD			

A Samsung HD Network Security Solution captures up to 5 times the detail of standard resolution systems. HD image capture up to 1080p, recording and display combine to provide a security system which delivers an incredibly high level of picture detail.

HD cameras and displays deliver a wide aspect 16:9 view of a scene and allow operators to pin-point specific areas of interest for closer inspection, without losing definition or suffering from pixilation. And by using HD recording this can be achieved on recorded footage with the same clarity.

With a host of cameras, a choice of hardware or software recording options, plus HD displays, you can develop a security solution perfectly suited to your business.

Samsung HD Network Security Solutions. Smarter Security.

T 01932 455 308
E STEsecurity@samsung.com
W samsungsecurity.com

Samsung Techwin Europe Ltd
1000 Hillswood Drive. Chertsey. Surrey. KT16 0PS. UK

SAMSUNG